UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,563	01/11/2002	Masayuki Suda	S004-4523	1832

7590 07/25/2003

ADAMS & WILKS
31st Floor
50 Broadway
New York, NY 10004

EXAMINER
NICOLAS, WESLEY A

ART UNIT	PAPER NUMBER
1742	6

DATE MAILED: 07/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

AS-6

Office Action Summary	Application No.	Applicant(s)	
	10/045,563	SUDA ET AL.	
	Examiner	Art Unit	
	Wesley A. Nicolas	1742	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claims 1-3 and 10-12 are objected to because of the following informalities: the term "chemical fabricating process" is only enabling for electrolytic etching (see Applicant's specification on pp. 11 and 20) and as such, Applicant should change "chemical fabricating process" to "electrolytic etching."

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 4-5, 10-11, and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Rolfson (5,968,336).

Claim 1 is rejected because Cohen teaches a method of fabricating a part comprising:

- a sacrificing layer forming step of depositing a layer of a material for constituting a sacrificing layer on a surface of a base material (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18);

- a structural body material layer forming step of depositing a layer for constituting a material of a part structural body different from the sacrificing layer on a surface of the sacrificing layer (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18);
- a part shape fabricating step of fabricating the structural body material layer along an outer configuration shape of the part (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18); and
- a part separating step of separating the structural body material fabricated in an outer configuration of the part from the base material by selectively removing only the sacrificing layer (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18), wherein the part shape fabricating step is carried out by a chemical fabricating process.

Claim 2 is rejected because Cohen teaches a method of fabricating a part comprising:

- a structural body material layer forming step of depositing a layer for constituting a material of a part structural body different from a base material on a surface of the base material (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18);
- a part shape fabricating step of fabricating the structural body material layer along an outer configuration shape of the part (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18);
- and a part separating step of separating the structural body material fabricated in an outer configuration of the part from the base material by selectively removing a portion or a whole of the base material, wherein the part shape fabricating step is

carried out by a chemical fabricating process (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18).

Claims 4-5 and 13-14 are rejected because Cohen teaches that the part shape fabricating step includes a step of separating only the part from the structural body material layer by forming a groove having a predetermined width at the structural body material layer along the outer configuration shape of the part by a chemical fabricating process (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18 wherein the groove is formed by etching).

Claim 10 is rejected because Cohen teaches a method of fabricating a part which is a method of fabricating a part constituted by:

- a base material and a structural body material layer formed thereon (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18),
- a portion of the structural body material layer forming a structural body fixing portion which is tightly attached to the base material and the structural body material layer except the structural body fixing portion not being tightly attached to the base material and including a movable structure which is able to be changing a position relatively to the base material (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18),
- said method comprising a sacrificing layer forming step of depositing a layer of a material for constituting a sacrificing layer on a surface of the base material ();
- a structural body fixing portion forming step of forming the structural body fixing portion by exposing the surface of the base material by removing a portion of the sacrificing layer (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18);

- a structural body material layer forming step of depositing a layer for constituting a material of a part structural body different from the sacrificing layer on surfaces of the sacrificing layer and the structural body fixing portion (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18);
- a movable portion shape fabricating step of fabricating the structural body material layer along an outer configuration shape of the movable portion (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18); and
- a movable portion separating step of separating the structural body material layer except the structural body fixing portion from the base material by selectively removing only the sacrificing layer, wherein the movable portion shape fabricating step is carried out by a chemical fabricating process (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18).

Claim 11 is rejected because Cohen teaches a method of fabricating a part which is a method of fabricating a part constituted by:

- a base material and a structural body material layer formed thereon (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18),
- a portion of the structural body material layer forming a structural body fixing portion which is tightly attached to the base material and the structural body material layer except the structural body fixing portion not being tightly attached to the base material and including a movable structure which is able to be changing a position relatively to the base material (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18),

- said method comprising a sacrificing layer forming step of depositing a layer of a material for constituting a sacrificing layer on a surface of the base material except an area for constituting the structural body fixing portion (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18);
- a structural body material layer forming step of depositing a layer for constituting a material of a structural body different from the sacrificing layer on surfaces of the sacrificing layer and the structural body fixing portion (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18);
- a movable portion shape fabricating step of fabricating the structural body material layer along an outer configuration shape of a movable portion (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18); and
- a movable portion separating step of separating the structural body material layer except the structural body fixing portion from the base material by selectively removing only the sacrificing layer (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18), wherein the movable portion shape fabricating step is carried out by a chemical fabricating process (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 3, 6, 12, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rolfson (5,968,336), and further in view of Bonivert et al. (6,350,360).

Rolfson are as applied, argued, and disclosed above and incorporated herein but fail to specifically teach a step of forming a peeling layer.

Bonivert et al. teach a process of fabricating a 3D tool wherein a peeling layer is formed (Fig. 1D: "cover sheet").

Claims 3 and 12 are rejected because it would have been obvious and within the ordinary skill in the art at the time the invention was made to have modified Rolfson to use a peeling layer in fabricating a part as taught by Bonivert et al. because Bonivert et al. teach that a peeling layer can be efficiently used as either a way to mask the lower structures or as a way to efficiently remove structures from above or below the peeling layer without using any chemical processes (Fig. 1D: "cover sheet" and col. 4), which would have increased the overall efficiency of the process.

Claims 6 and 15 are rejected because Cohen teaches that the part shape fabricating step includes a step of separating only the part from the structural body material layer by forming a groove having a predetermined width at the structural body

material layer along the outer configuration shape of the part by a chemical fabricating process (Figs. 3A-3K and col. 3, line 22 to col. 5, line 18 wherein the groove is formed by etching).

7. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Rolfson - Bonivert et al. combination as applied to claims 6 and 15 above, and further in view of Wakabayashi et al. (5,976,347).

The Rolfson - Bonivert et al. combination are as applied, argued, and disclosed above and incorporated herein but fail to specifically teach the use of a machining electrode in the chemical fabricating process.

Wakabayashi et al. teach a method of electrolytic machining using a machining electrode having a pertinent shape in a machining solution oppositely to the structural body material layer (Abstract and cols. 11 to 20).

Claims 9 and 18 are rejected because it would have been obvious and within the ordinary skill in the art at the time the invention was made to have modified the Rolfson - Bonivert et al. combination to use the electrolytic machining of Wakabayashi et al. because Wakabayashi et al. teach a method of electrolytic machining using a machining electrode having a pertinent shape in a machining solution oppositely to the structural body material layer (Abstract and cols. 11 to 20) which allows the user to make precise patterns of small dimensions (col. 15) which can provide for small scale patterning.

8. Claims 7-8 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rolfson as applied to claims 4-5 and 13-14 above, and further in view of Wakabayashi et al. (5,976,347).

The Rolfson - Bonivert et al. combination are as applied, argued, and disclosed above and incorporated herein but fail to specifically teach the use of a machining electrode in the chemical fabricating process.

Wakabayashi et al. teach a method of electrolytic machining using a machining electrode having a pertinent shape in a machining solution oppositely to the structural body material layer (Abstract and cols. 11 to 20).

Claims 7-8 and 16-17 are rejected because it would have been obvious and within the ordinary skill in the art at the time the invention was made to have modified Rolfson to use the electrolytic machining of Wakabayashi et al. because Wakabayashi et al. teach a method of electrolytic machining using a machining electrode having a pertinent shape in a machining solution oppositely to the structural body material layer (Abstract and cols. 11 to 20) which allows the user to make precise patterns of small dimensions (col. 15) which can provide for small scale patterning.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley Nicolas whose telephone number is (703)305-0082. The examiner can normally be reached on Mon.-Thurs. from 7am to 5pm.

The Supervisory Primary Examiner for this Art Unit is Roy King whose telephone number is (703) 308-1146.

The fax number for this Group is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Wesley A. Nicolas

July 23, 2003